

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: N. Kadoya et al.	: Art Unit:
Serial No.: To Be Assigned	: Examiner:
Filed: Herewith	:
FOR: MOTOR, ELECTRIC VEHICLE AND	:
HYBRID ELECTRIC VEHICLE	:

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

S I R :

Prior to examination, please amend the above-identified application as follows:

IN THE SPECIFICATION:

Please replace the following paragraphs:

At page 10, line 1:

One aspect of the present invention is a hybrid electric vehicle,
comprising:

At page 11, lines 17-18:

Another aspect of the present invention is the motor, wherein said plurality of first rotator portions are not arranged adjacent to each other.

At page 11, line 20:

A motor according to the present invention is, because of the above-described structure, capable of raising a salient pole ratio of the second rotator portion to thereby increase reluctance torque caused in the second rotator portion by causing leakage flux of a permanent magnet further disposed in the first rotator portion in addition to the above-described effect to go round to the second rotator portion from both sides to magnetically saturate the second rotator portion.

At page 12, lines 15-16:

Still another aspect of the present invention is the motor, wherein said first rotator portion and said second rotator portion are magnetically combined.

At page 12, line 18:

A motor according to the present invention is, because of the above-described structure, capable of raising a salient pole ratio of the second rotator portion to thereby increase reluctance torque caused in the second rotator portion by causing leakage flux of a permanent magnet further disposed in the first rotator portion in addition to the above-described effects to go round to the second rotator portion to magnetically saturate the second rotator portion.

At page 13, lines 6-7:

Yet another aspect of the present invention is the motor,

At page 13, line 15:

A motor according to the present invention is, because of the above-described structure, capable of raising a salient pole ratio of the second rotator portion to thereby increase reluctance torque caused in the second rotator portion by causing main magnetic flux of a permanent magnet disposed in the first rotator portion in addition to the above-described effect to flow into the stator side, causing leakage flux to go round to the second rotator portion effectively to magnetically saturate the second rotator portion.

At page 14, lines 4-5:

Still yet another aspect of the present invention is the motor, wherein said first rotator portion and said second rotator portion are arranged adjacent to each other in such a manner that current phases for generating their both maximum torque become actually in the same phase.

At page 14, line 9:

A motor according to the present invention is, because of the above-described structure, capable of being made into a higher-torque, higher-output and higher-efficiency motor at low generated voltage by causing current phases for generating respective maximum torque of the first rotator portion and the second rotator portion to be in the same phase with each other in addition to the above-described effects. The motor size can be also further miniaturized.

At page 14, lines 18-19:

A further aspect of the present invention is the motor, wherein said stator has a stator winding of distributed winding or a stator winding of concentrated winding.

At page 14, line 22:

A motor according to the present invention is, when the stator has a stator winding of distributed winding, capable of being made into a motor having small cogging torque and torque ripple, and on the other hand, is, when the stator has a stator winding of concentrated winding, capable of being made into a high-torque motor, a motor-installing method of which is simple and easy.

At page 15, lines 5-7:

A still further aspect of the present invention is a driving unit equipped with a motor, and a fuel cell as power supply for said motor.

At page 15, line 8:

A driving unit according to the present invention is, as described above, capable of being made into a small-sized, high-output and safe driving unit having longer travel distance per charging by combining a small-sized, high-torque, high-output and high-efficiency motor at low generated voltage with a fuel cell.

At page 15, lines 14-15:

A yet further aspect of the present invention is an electric vehicle comprising a driving unit.

At page 15, line 16:

An electric vehicle according to the present invention is, because of the above-described structure, capable of being made into a small-sized, high-output and safe fuel-cell electric vehicle having long travel distance per charging.

At page 15, line 21:

A still yet further aspect of the present invention is a hybrid electric vehicle, comprising:

At page 16, lines 17-18:

An additional aspect of the present invention is the hybrid electric vehicle, wherein said first rotator portion and said second rotator portion are

coupled at such a mechanical angle that a current phase with which maximum torque of said first rotator portion occurs, and a current phase with which maximum torque of said second rotator portion occurs become actually in the same phase.

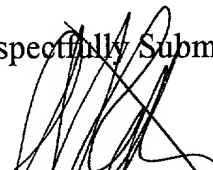
At page 17, lines 1-2:

A still additional aspect of the present invention is the hybrid electric vehicle, further comprising:

At page 17, lines 10-11:

A yet additional aspect of the present invention is the hybrid electric vehicle, wherein said abnormality monitoring means has at least one means, of voltage monitoring means of monitoring voltage of said energy storing means, current monitoring means of monitoring current of said energy storing means, temperature monitoring means of monitoring temperature of said energy storing means, and power regulator monitoring means of monitoring abnormality of said power regulator.

Respectfully Submitted,


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Kathleen Libby

VERSION WITH MARKINGS TO SHOW CHANGES MADESPECIFICATION:

At page 10, line 1:

~~The 1st invention~~ One aspect of the present invention is a hybrid electric vehicle, comprising:

At page 11, lines 17-18:

~~The 2nd invention~~ Another aspect of the present invention is the motor ~~according to 1st invention~~, wherein said plurality of first rotator portions are not arranged adjacent to each other.

At page 11, line 20:

A ~~second~~ motor according to the present invention is, because of the above-described structure, capable of raising a salient pole ratio of the second rotator portion to thereby increase reluctance torque caused in the second rotator portion by causing leakage flux of a permanent magnet further disposed in the first rotator portion in addition to the above-described effect to go round to the second rotator portion from both sides to magnetically saturate the second rotator portion.

At page 12, lines 15-16:

~~The 3rd invention~~ Still another aspect of the present invention is the motor ~~according to 1st invention~~, wherein said first rotator portion and said second rotator portion are magnetically combined.

At page 12, line 18:

A ~~third~~ motor according to the present invention is, because of the above-described structure, capable of raising a salient pole ratio of the second rotator portion to thereby increase reluctance torque caused in the second rotator portion by causing leakage flux of a permanent magnet further disposed in the first rotator portion in addition to the above-described effects to go round to the second rotator portion to magnetically saturate the second rotator portion.

At page 13, lines 6-7:

~~The 4th invention~~ Yet another aspect of the present invention is the motor ~~according to 1st invention~~,

At page 13, line 15:

A ~~fourth~~ motor according to the present invention is, because of the above-described structure, capable of raising a salient pole ratio of the second rotator portion to thereby increase reluctance torque caused in the second rotator portion by causing main magnetic flux of a permanent magnet disposed in the first rotator portion in addition to the above-described effect to flow into the stator side, causing leakage flux to go round to the second rotator portion effectively to magnetically saturate the second rotator portion.

At page 14, lines 4-5:

~~The 5th invention~~ Still yet another aspect of the present invention is the motor ~~according to 1st invention~~, wherein said first rotator portion and said second rotator portion are arranged adjacent to each other in such a manner that current phases for generating their both maximum torque become actually in the same phase.

At page 14, line 9:

A ~~fifth~~ motor according to the present invention is, because of the above-described structure, capable of being made into a higher-torque, higher-output and higher-efficiency motor at low generated voltage by causing current phases for generating respective maximum torque of the first rotator portion and the second rotator portion to be in the same phase with each other in addition to the above-described effects. The motor size can be also further miniaturized.

At page 14, lines 18-19:

~~The 6th invention~~ A further aspect of the present invention is the motor ~~according to 1st invention~~, wherein said stator has a stator winding of distributed winding or a stator winding of concentrated winding.

At page 14, line 22:

A ~~sixth~~ motor according to the present invention is, when the stator has a stator winding of distributed winding, capable of being made into a motor having small cogging torque and torque ripple, and on the other hand, is, when the stator has a stator winding of concentrated winding, capable of being made into a high-torque motor, a motor-installing method of which is simple and easy.

At page 15, lines 5-7:

~~The 7th invention~~ A still further aspect of the present invention is a driving unit equipped with a motor ~~according to any one of 1st to 6th inventions~~, and a fuel cell as power supply for said motor.

At page 15, line 8:

A ~~seventh~~-driving unit according to the present invention is, as described above, capable of being made into a small-sized, high-output and safe driving unit having longer travel distance per charging by combining a small-sized, high-torque, high-output and high-efficiency motor at low generated voltage with a fuel cell.

At page 15, lines 14-15:

~~The 8th invention~~ A yet further aspect of the present invention is an electric vehicle comprising a driving unit according to 7th invention.

At page 15, line 16:

An ~~eighth~~-electric vehicle according to the present invention is, because of the above-described structure, capable of being made into a small-sized, high-output and safe fuel-cell electric vehicle having long travel distance per charging.

At page 15, line 21:

~~The 9th invention~~ A still yet further aspect of the present invention is a hybrid electric vehicle, comprising:

At page 16, lines 17-18:

~~The 10th invention~~ An additional aspect of the present invention is the hybrid electric vehicle according to 9th invention, wherein said first rotator portion and said second rotator portion are coupled at such a mechanical angle that a current phase with which maximum torque of said first rotator portion occurs, and a current phase with which maximum torque of said second rotator portion occurs become actually in the same phase.

At page 17, lines 1-2:

~~The 11th invention~~ A still additional aspect of the present invention is the hybrid electric vehicle according to 9th or 10th inventions, further comprising:

At page 17, lines 10-11:

~~The 12th invention~~ A yet additional aspect of the present invention is the hybrid electric vehicle according to 11th invention, wherein said abnormality

monitoring means has at least one means, of voltage monitoring means of monitoring voltage of said energy storing means, current monitoring means of monitoring current of said energy storing means, temperature monitoring means of monitoring temperature of said energy storing means, and power regulator monitoring means of monitoring abnormality of said power regulator.